Geometry

Name ANSWER KEY

Per. _____ Date _____

Unit 11 Review Packet – Surface Area & Volume

Directions: **In the box provided next to each target section, put an (S) if you were able to complete the section by *yourSELF*, an (H) if you received a *minimal* amount of *HELP* from me, a classmate, or another source, or a (D) if you felt the section was *DIFFICULT* and required you to get *a lot* of help. This will help provide you by giving you feedback as to what topics you should be focusing on as you prepare for the test.**

☐ (Vocabulary & Nets)

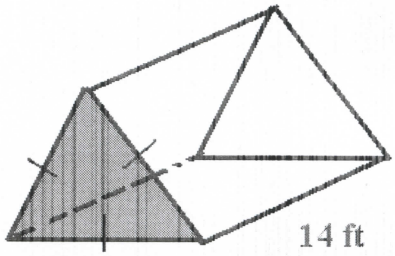
#'s 1-6, fill the in the blank with the appropriate word from the word bank.

1. The LATERAL area is the area of all faces except for the bases of a solid.
2. A flat 2-dimensional surface of a solid is called a FACE.
3. The intersection of two faces on any solid is called a(n) EDGE.
4. The SURFACE area of any solid is the sum of the areas of all of the faces and the bases.
5. The measure of the amount of space enclosed by a 3-dimensional figure is its VOLUME.
6. If a prism has a side that is a shape other than a rectangle, that side is its BASE.

Word Bank

Composite
Edge
Volume
Surface
Lateral
Face
Vertex
Net
Base

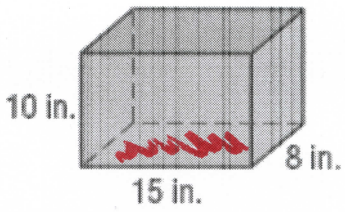
☐ TARGET A (Prisms)



7. Find the following for the given prism. Round to the hundredths place.

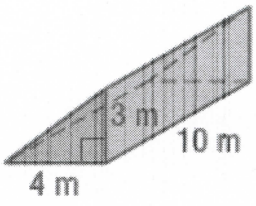
Area of the Base $A = \frac{s^2\sqrt{3}}{4}$ $= 9\sqrt{3}$ $= 15.5885$ $15.59\ ft^2$	Lateral Area $P = 6+6+6 = 18$ $LA = P \cdot H$ $= 18 \cdot 14$ $= 252$ $252\ ft^2$
Find the surface area. $SA = LA + 2B$ $= 252 + 2(15.59)$ $283.18\ ft^2$	Find the volume. $V = B \cdot H$ $= 15.59 \cdot 14$ $218.26\ ft^3$

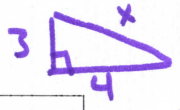
8. Find the following for the given prism.



Area of the base. $A_B = bh$ $= 15 \cdot 8$ $= 120$ B = $120\ in^2$	Find the lateral area. $P = 15+8+15+8$ $= 46$ $LA = P \cdot H$ $= 46 \cdot 10$ $= 460$ LA = $460\ in^2$
Find the surface area. $SA = LA + 2B$ $= 460 + 2(120)$ $= 700$ SA = $700\ in^2$	Find the volume. $V = B \cdot H$ $= 120 \cdot 10$ $= 1200$ V = $1200\ in^3$

9. Find the following for the triangular prism.



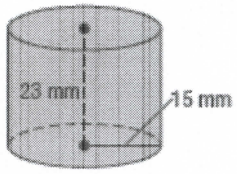


$x^2 = 3^2 + 4^2$
$x^2 = 9 + 16$
$x^2 = 25$
$x = 5$

Area of the base. $A_B = \frac{1}{2}bh$ $= \frac{1}{2} \cdot 4 \cdot 3$ $= 6$ B = $6\ m^2$	Find the lateral area. $P = 3+4+5$ $= 12$ $LA = P \cdot H$ $= 12 \cdot 10$ $= 120$ LA = $120\ m^2$
Find the surface area. $SA = LA + 2B$ $= 120 + 2(6)$ $= 132$ SA = $132\ m^2$	Find the volume. $V = B \cdot H$ $= 6 \cdot 10$ $= 60$ V = $60\ m^3$

TARGET B (Cylinders)

10. Find the following for the given cylinder and **leave all answers in terms of π.**

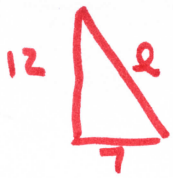


Area of the base. $A_B = \pi r^2$ $= \pi 15^2$ $= 225\pi$ B = 225π mm^2	Find the lateral area. $P = C = 2\pi r = 30\pi$ $LA = P \cdot H$ $= 30\pi \cdot 23$ $= 690\pi$ LA = 690π mm^2
Find the surface area. $SA = LA + 2B$ $= 690\pi + 2(225\pi)$ $= 1140\pi$ SA = 1140π mm^2	Find the volume. $V = B \cdot H$ $= 225\pi \cdot 23$ $= 5175\pi$ V = 5175π mm^3

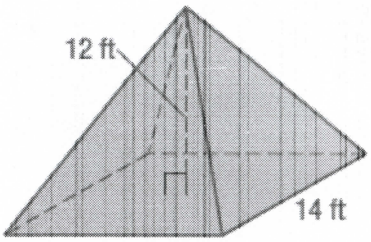
TARGET C (Pyramids)

11. Find the following for the given pyramid but first

find the **slant height** to the nearest tenth = 13.9



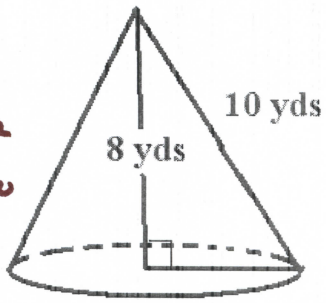
$\ell^2 = 12^2 + 7^2$
$\ell^2 = 193$
$\ell = 13.9$



Area of the base. $A_B = s^2$ $= 14^2$ $= 196$ B = 196 ft^2	Find the lateral area. $P = 14 + 14 + 14 + 14 = 56$ $LA = \frac{P \cdot \ell}{2}$ $= \frac{56 \cdot 13.9}{2}$ LA = 389.2 ft^2
Find the surface area. $SA = LA + B$ $= 389.2 + 196$ $= 585.2$ SA = 585.2 ft^2	Find the volume. $V = \frac{1}{3}BH$ $= \frac{1}{3} 196 \cdot 12$ $= 784$ V = 784 ft^3

TARGET D (Cones)

12. Find the following for the given cone and **leave all answers in terms of π.**



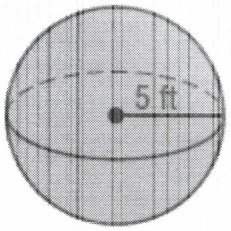
Find the radius 6 yds

$r^2+8^2=10^2$
$r^2+64=100$
$r^2=36$
$r=6$

Area of the base.	Find the lateral area. $P=C=2\pi r=12\pi$
$A_B=\pi r^2$ $=\pi 6^2$ $=36\pi$ B = 36π yd^2	$LA=\frac{Pl}{2}$ $=\frac{12\pi\cdot 10}{2}$ LA = 60π yd^2
Find the surface area.	**Find the volume.**
$SA=LA+B$ $=60\pi+36\pi$ SA = 96π yd^2	$V=\frac{1}{3}B\cdot H$ $=\frac{1}{3}(36\pi)8$ $=96\pi$ V = 96π yd^3

TARGET E (Spheres)

19. Find the following for the given sphere and **leave all answers in terms of π.**



Find the surface area.	Find the volume.
$SA=4\pi r^2$ $=4\pi 5^2$ $=100\pi$ SA = 100π ft^2	$V=\frac{4}{3}\pi r^3$ $=\frac{4}{3}\pi 5^3$ $=$ V = $166\frac{2}{3}\pi$ ft^3